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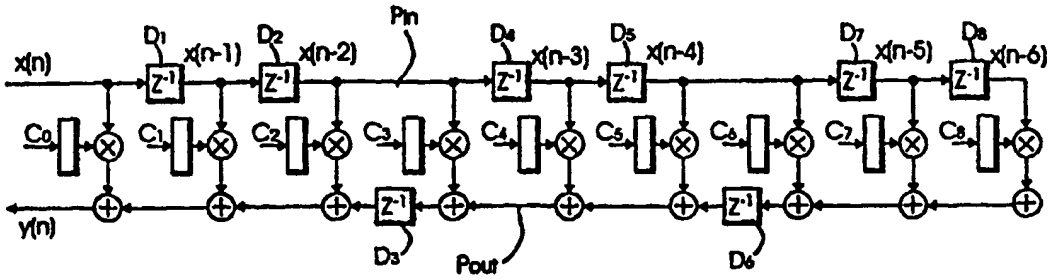


(57) Abstract

A digital filter has an input path and an output path and includes a set of delay elements and a number of taps. The taps couple the input path to the output path. Each of the taps has a coefficient, a multiplier and an adder. Each of the delay elements is disposed between two adjacent taps. The delay elements are placed in either the input path and the output path of the digital filter, such that the digital filter has fewer delay elements in the input path than a direct-form digital filter with the same number of taps in a direct-form structure, and has fewer delay elements in the output path than a transposed-form digital filter with the same number of taps in a transposed-form structure; and such that the digital filter has same transfer function as the direct-form digital filter and the transposed-form digital filter.

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# INTERNATIONAL SEARCH REPORT

Int .donal Application No
PCT/US 99/26483

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H03H17/06 H04B3/23 H04B3/32 H04L25/14 H04L25/497
H04L1/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 H03H H04B H04L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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[X] Further documents are listed in the continuation of box C.

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| Date of the actual completion of the international search | Date of mailing of the international search report |
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| Name and mailing address of the ISA | Authorized officer |
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In. ational Application No
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

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